REMARKS

Withdrawal of the finality of the above-identified Office Action, reconsideration, and allowance of claims 1-12 is requested.

In item 3 on page 2 of the above-identified final Office Action, claims 1-12 have been rejected as being obvious over U.S. Patent No. 6,289,041 to Krasner (hereinafter '041) in view of newly cited U.S. Patent No. 6,278,699 to Atarius (hereinafter '699) under 35 U.S.C. § 103(a).

As will be explained below, it is believed that claims 1-12 were patentable over the cited art in their previously presented form and, therefore, the claims have not been amended to overcome the references.

Applicants previously amended the instant application "with a view to avoiding all the grounds of rejection and objection" to facilitate prosecution of the instant application. In fact, the Examiner concedes that the claims as previously presented include subject matter that "Krasner does not teach" in the above-identified final Office Action. Moreover, Applicants traverse the introduction of the newly cited reference '699 was not necessitated by applicants' amendment, rather the reference originally cited, U.S. Patent

No. 5,974,038 to Shou, et al. (hereinafter '038), did not include all of the limitations of claim 1 of the instant application. Specifically, '038 did not disclose the despreading of a synchronization signal, nor did '038 disclose the fine-tuning of the frequency based in part on the despread synchronization signal. As such, Applicants should be allowed to initially respond to the newly cited reference without the finality of the above-identified Office Action.

The Examiner is respectfully reminded that MPEP 706.05 advises,

> Before final rejection is in order a clear issue should be developed between the examiner and applicant. To bring the prosecution to as speedy conclusion as possible and at the same time to deal justly by both the applicant and the public, the invention as disclosed and claimed should be thoroughly searched in the first action and the references fully applied; and in reply to this action the applicant should amend with a view to avoiding all the grounds of rejection and objection.

In the present case, Applicants previously amended the instant application "with a view to avoiding all the grounds of rejection and objection" and feel that clear issues concerning the use of the "**despread received synchronization signal**" and "**fine-tuning the second frequency to the first frequency**" have been developed. In fact, the Examiner concedes that the previous amendments include subject matter that "Krasner does not teach".

MPEP 706.05 also reminds the Applicant and the Examiner,

> While the rules no longer give to an applicant the right to 'amend as often as the examiner presents new references or reasons for rejection,' present practice does not sanction hasty and ill-considered final rejections. The applicant **who is seeking to define his or her invention in claims** that will give him or her the patent protection **to which he or she is justly entitled** should receive the cooperation of the examiner to that end, **and not be prematurely cut off in the prosecution of his or her application.**

As the previously provided amendments better define the present invention in the claims, the Applicant respectfully requests the cooperation of the Examiner in the continued prosecution of the application.

Moreover, the Examiner is respectfully reminded that MPEP 706.05 also advises:

> The examiner should never lose sight of the fact that in every case the applicant is entitled to a full and fair hearing, and that a clear issue between applicant and examiner should be developed, if possible, before appeal.

In this regard, it is believed that claims 1-12 were patentable over the cited art in their previously presented form and the Examiner is invited to consider the following remarks to help provide "a full and fair hearing" to develop a "clear issue … if possible, before appeal."

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be

helpful. Claim 1 calls for, *inter alia*, a method of synchronizing mobile CDMA radio receivers in a cellular CDMA mobile radio system that includes a first synchronization channel with a first frequency to transmit a synchronization signal with a code to the mobile radio receivers and to base stations of the mobile radio system, and that transmission from a base station to a mobile radio receiver delays the synchronization signal by an unknown time period such that the first frequency is shifted by the transmission to a second frequency, the method including the following steps:

splitting the received synchronization signal into a real part signal and an imaginary part signal;

sampling the real part signal and the imaginary part signal to form sampled signals;

digitally filtering each sampled signal to correlate the sampled signal to the known code and to form filtered signals;

squaring each filtered signal to form squared signals;

determining a maximum signal level from the squared signals;

estimating the unknown time period with the maximum signal level determined in the determining step;

despreading the received synchronization signal with the known code and taking into account the time period estimated in the estimating step;

determining a frequency deviation between the first frequency and the second frequency **based on the despread received synchronization signal**; and

fine-tuning the second frequency to the first frequency.

Therefore, according to claim 1 of the instant application, a synchronization signal that is provided by a first synchronization channel is utilized for predominately two purposes:

On the one hand, for time synchronization, whereby an unknown time period T_d is estimated by a matched filter analysis as outlined in the first part of claim 1 of the instant application.

On the other hand, for fine frequency synchronization, a frequency deviation is determined and also corrected ("**fine tuning the second frequency to the first frequency**"), as stated in the second part (last 3 steps) of claim 1 of the instant application. As a key aspect of the invention, the frequency synchronization is performed "**on the basis of the**

despread synchronization signal", whereby the estimated period T_d is taken into account.

The advantage of carrying out both tasks (time and frequency synchronization) on basis of one synchronization channel is that the fine frequency synchronization is obtained very early in the overall synchronization process. This results in a more robust and more rapid overall synchronization process. For effective fine frequency synchronization, a prior despreading of the received synchronization signal is important.

In contrast, known synchronization procedures in CDMA mobile radio systems, such as UMTS, use the synchronization channel PSCH (primary synchronization channel) for time synchronization and only the initial coarse setting of the frequency. In the prior art, the synchronization channel is not used for fine-tuning of frequency as explained on page 3, lines 2 to 7, of the instant application.

Exemplary approaches currently used for frequency fine-tuning that are disparate to the instant application include a so-called CPICH channel (common pilot channel), whereby the frequency fine tuning is performed as the last step of the overall synchronization process. This occurs because the

CPICH can only be demodulated after completing scrambling-code identification. Therefore, all previous steps of synchronization are performed with an imprecise frequency that is not fine-tuned "**based on the despread received synchronization signal**" as recited in claim 1 of the instant application.

The '**041** reference discloses using the received GPS-signal both for estimating the time of arrival (cf. column 5, lines 23 to 25) and for determining and compensating the frequency deviation between the transmitted and the received GPS-signal (cf. column 5, lines 39-45).

Applicants acknowledge the Examiner's statement in the above identified Office Action that '**041** does not teach "despreading" the received GPS signal with the known code and taking into account the time period estimated in the estimating step. Furthermore, the Examiner notes that '**041** also fails to disclose that the frequency deviation is determined on the basis of the despread signal.

Clearly, Applicants and the Examiner agree that '**041** does not show "determining a frequency deviation ... **based on the despread received synchronization signal**" as recited in claim 1 of the instant application. Applicants and the Examiner

also agree that '041 does not teach or suggest "**despreading the received synchronization signal** with the known code and taking into account the time period estimated in the estimating step" as recited in claim 1 of the instant application. Applicants respectfully assert, in view of the foregoing comments, that '041 does not teach or suggest "**fine-tuning the second frequency to the first frequency**" as recited in claim 1.

Although the '699 reference discloses a synchronization technique in a cellular CDMA mobile radio system and '699 is similar to the present invention in that both time synchronization and frequency synchronization are carried out by means of the synchronization channel, the method used to achieve this overall synchronization goal, however, is different in '699 than the method defined in claim 1 of the instant application. For example, '699 teaches the introduction of a temporary frequency deviation into the carrier frequency of the BCCH2 channel by a non-spread periodic signal. Based on this step, time synchronization is achieved by finding the time at which the frequency deviation begins (col. 6, lines 40 to 43). Moreover, frequency synchronization in '699 is performed by comparing the intended frequency deviation with the measured frequency deviation (col. 6, lines 49 to 55).

Clearly, '699 does not show "determining a frequency deviation ... **based on the despread received synchronization signal**" as recited in claim 1 of the instant application. Nor does '699 teach or suggest "**fine-tuning the second frequency to the first frequency**" based on the despread received synchronization signal as recited in claim 1.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art. The dependent claims are believed to be patentable as well because they all are ultimately dependent on claim 1.

In view of the foregoing, withdrawal of the finality of the above-identified Office action, reconsideration, and allowance of claims 1-12 are solicited. In the event the Examiner should still find any of the remaining claims to be unpatentable, counsel would appreciate receiving a telephone call so that, if possible, patentable language can be worked out.

Appl. No. 10/047,001
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Please charge any other fees that might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

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For Applicants

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